

# EXHIBIT 3

CORNERSTONE RESEARCH

Economic and Financial Consulting and Expert Testimony

# Securities Class Action Settlements

2018 Review and Analysis

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The views expressed in this report are solely those of the authors, who are responsible for the content, and do not necessarily represent the views of Cornerstone Research.

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Analyses in this report are based on 1,775 securities class actions filed after passage of the Private Securities Litigation Reform Act of 1995 (Reform Act) and settled from 1996 through year-end 2018. See page 16 for a detailed description of the research sample. For purposes of this report and related research, a settlement refers to a negotiated agreement between the parties to a securities class action that is publicly announced to potential class members by means of a settlement notice.

# Highlights

Propelled by mega settlements of \$100 million or higher, total settlement dollars rose to just above \$5 billion in 2018. This was the third-highest total in the prior 10 years. An increase in midsized settlements between \$10 million and \$50 million also contributed to the increased total value of settlements.

- There were 78 securities class action settlements approved in 2018—only slightly fewer than the number of settlements approved in 2017. [\(page 1\)](#)
- Total settlement dollars increased substantially over the 2017 near-historic low to just over \$5 billion, which was 50 percent higher than the average for the prior nine years. [\(page 3\)](#)
- There were five mega settlements (settlements equal to or greater than \$100 million) in 2018. [\(page 4\)](#)
- Compared to the historically low levels in 2017, in 2018 the average settlement amount more than tripled to \$64.9 million, while the median settlement amount (representing the typical case) more than doubled to \$11.3 million. [\(page 1\)](#)
- For 2018 cases with Rule 10b-5 claims, when compared to 2017 results, average “simplified tiered damages” rose 45 percent to \$687 million, while median “simplified tiered damages” rose 88 percent to \$250 million. [\(page 5\)](#)
- The median settlement as a percentage of “simplified tiered damages” in 2018 was 6.0 percent—higher than the median of 5.1 percent over the prior nine years. [\(page 6\)](#)
- Compared to defendant firms involved in cases settled in 2017, defendant firms in 2018 settlements were roughly 50 percent larger, as measured by median total assets. [\(page 5\)](#)
- During 2014–2018, the median settlement for cases that settled before a ruling on a motion for class certification was \$12.6 million, compared to \$18.0 million for cases that settled after such a ruling. [\(page 13\)](#)
- Among 2018 settled cases, the average time to reach a ruling on a motion for class certification was 4.8 years. [\(page 13\)](#)

**Figure 1: Settlement Statistics**

(Dollars in millions)

	1996–2017	2017	2018
Number of Settlements	1,697	81	78
Total	\$96,982.2	\$1,511.1	\$5,064.3
Minimum	\$0.2	\$0.5	\$0.4
Median	\$8.6	\$5.1	\$11.3
Average	\$57.1	\$18.7	\$64.9
Maximum	\$9,008.9	\$215.1	\$3,000.0

Note: Settlement dollars are adjusted for inflation; 2018 dollar equivalent figures are used. Figure 1 includes all post-Reform Act settlements. Settlements during 1996–2017 include 13 cases each exceeding \$1 billion—adjusted for inflation, these settlements drive up the average settlement amount.

# Author Commentary

## 2018 Findings

In this section we provide our perspective on the increase in the 2018 median settlement amount, both in dollars and as a percentage of our simplified proxy for plaintiff-style damages.

While there are important determinants of settlement amounts that we are unable to observe, such as case merits, we collect and analyze publicly available data in an effort to represent underlying constructs relevant to settlement determination. These determinants include the strength of the case, potential damages alleged by plaintiffs, resources available to fund the settlement from named defendants and/or their insurers, as well as other factors that may affect the settlement negotiation process.

Over the years, we have identified a number of factors that are associated with higher settlement amounts. The results in 2018 are unusual in that settlement amounts increased—even as a percentage of our simplified damages proxy—despite a decrease in certain factors typically associated with larger settlements.

For example, relative to both the previous year (2017) and the previous nine years (2009–2017), fewer cases settled in 2018 involved accounting allegations. Similarly, settlements also involved fewer public pension plan lead plaintiffs. These findings raise the question: what did cause the increase in settlement amounts in 2018?

One interesting finding in 2018 is that more than 14 percent of settled cases involved an accompanying criminal action—the highest proportion over the last 10 years. Cases associated with a criminal action generally settle for higher amounts.

However, the answer appears to relate primarily to the potential resources available to fund the settlement. Specifically, we study issuer defendant total assets as a proxy for both the resources available directly from the defendant, as well as potential Directors and Officers (D&O) insurance coverage. In 2018, defendant firms in settled cases were 50 percent larger than in 2017, and over 20 percent larger than over the prior five years. Similarly, both the proportions of settlements involving delisted firms, as well as bankrupt firms, were the lowest over the last decade. Taken together, this suggests that economic factors played an important role in the increase in settlement size in 2018.

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*What is striking in 2018 is the dramatic increase in average and median settlement amounts despite a drop in a number of factors typically associated with higher settlements.*

*Dr. Laura E. Simmons  
Senior Advisor  
Cornerstone Research*

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## Recent Developments

Recent data on case filings can provide insights into potential settlement trends. Specifically, record levels of market capitalization losses reported for case filings in 2018 may suggest that large settlements will persist in upcoming years. See Cornerstone Research's *Securities Class Action Filings—2018 Year in Review*.<sup>1</sup>

In addition, the emergence of event-driven securities case filings over the last couple of years has been widely discussed. These cases have been described as driven by adverse events such as “an explosion, a crash, [or] a mass torts episode.”<sup>2</sup> Some authors have associated such cases with more rapid filings and the entrance of certain plaintiff law firms lacking connections to institutional investors.<sup>3</sup> Accordingly, we have investigated the development of trends related to these suits for case settlements in 2018.

We observe that, overall, settlement amounts, our simplified damages proxy, and defendant assets are all lower for cases in which the law firms associated with event-driven litigation serve as lead counsel. In addition, consistent with expectations, cases in which they serve as lead counsel are less likely to involve institutional investors as lead plaintiffs.

Given that securities cases take, on average, just over three-and-a-half years to resolve, such cases may have a greater impact on future settlement trends, and we will continue to investigate effects related to event-driven litigation in subsequent reports.

—Laarni T. Bulan, Ellen M. Ryan, and Laura E. Simmons

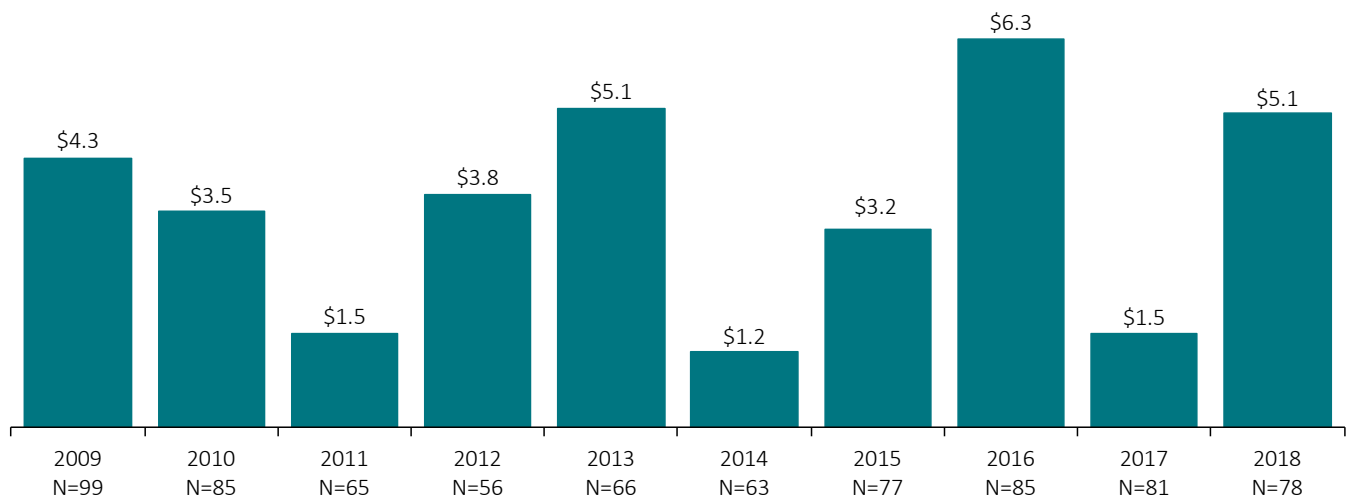
# Total Settlement Dollars

- The total value of settlements approved by courts in 2018 was just over \$5 billion—more than three times the total amount approved in 2017.
- The average settlement amount in 2018 was nearly \$65 million, considerably higher than the \$18.7 million average in 2017 and 44 percent higher than the average for the prior nine years.
- In addition, the 2018 median settlement of \$11.3 million was more than double the 2017 median, indicating larger 2018 settlements overall.
- The larger settlement amounts in 2018 were accompanied by higher levels in our proxy for plaintiff-style damages. (See page 5 for a discussion of damages estimates.)

*2018 total settlement dollars surpassed the prior nine-year average annual total by 50 percent.*

**Figure 2: Total Settlement Dollars  
2009–2018**

(Dollars in billions)



Note: Settlement dollars are adjusted for inflation; 2018 dollar equivalent figures are used. N refers to the number of observations.

# Settlement Size

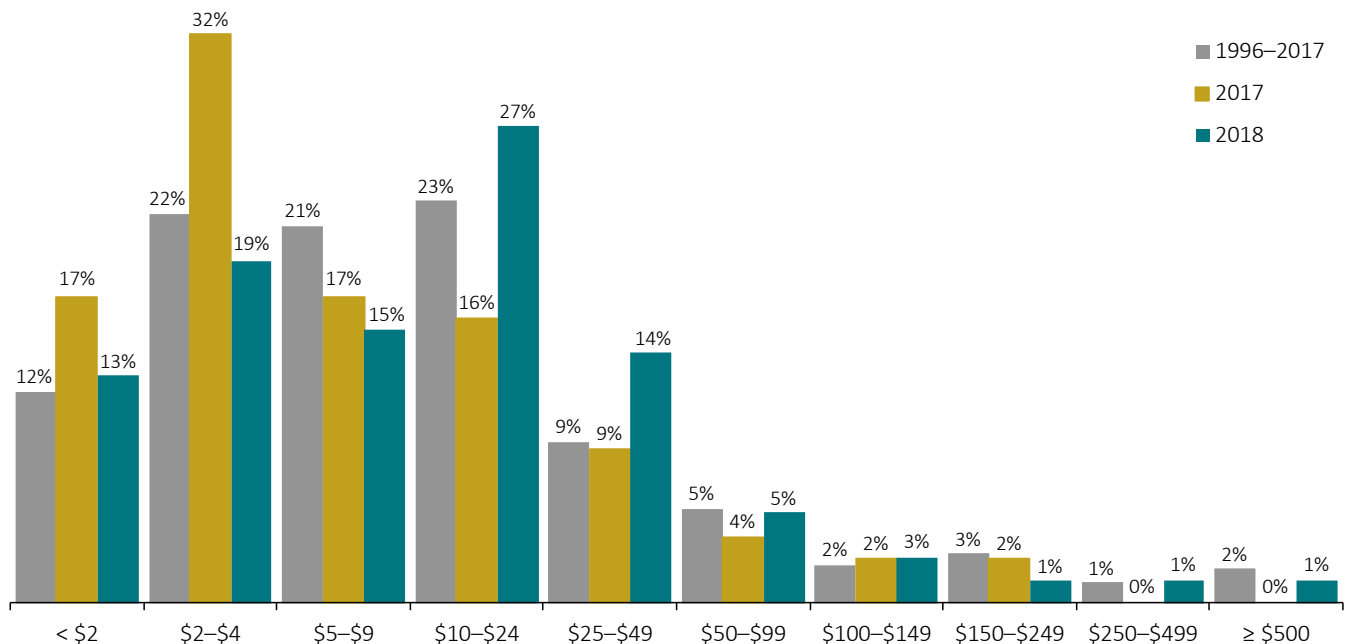
- There were five mega settlements in 2018, with settlements ranging from \$110 million to \$3 billion.

*32 cases settled for between \$10 million and \$49 million in 2018, representing an approximate 60 percent increase over 2017.*

- The median and average settlement amounts in 2018 were 31 percent and 14 percent higher than the median and average, respectively, for all prior post-Reform Act settlements.
- Contributing to the increase in median and average settlement amounts, the number of small settlements (amounts less than \$5 million) declined by nearly 40 percent, from 40 cases in 2017 to 25 in 2018.

Figure 3: Distribution of Post-Reform Act Settlements 1996–2018

(Dollars in millions)



Note: Settlement dollars are adjusted for inflation; 2018 dollar equivalent figures are used. Percentages may not sum to 100 percent due to rounding.



# Damages Estimates

## Rule 10b-5 Claims: “Simplified Tiered Damages”

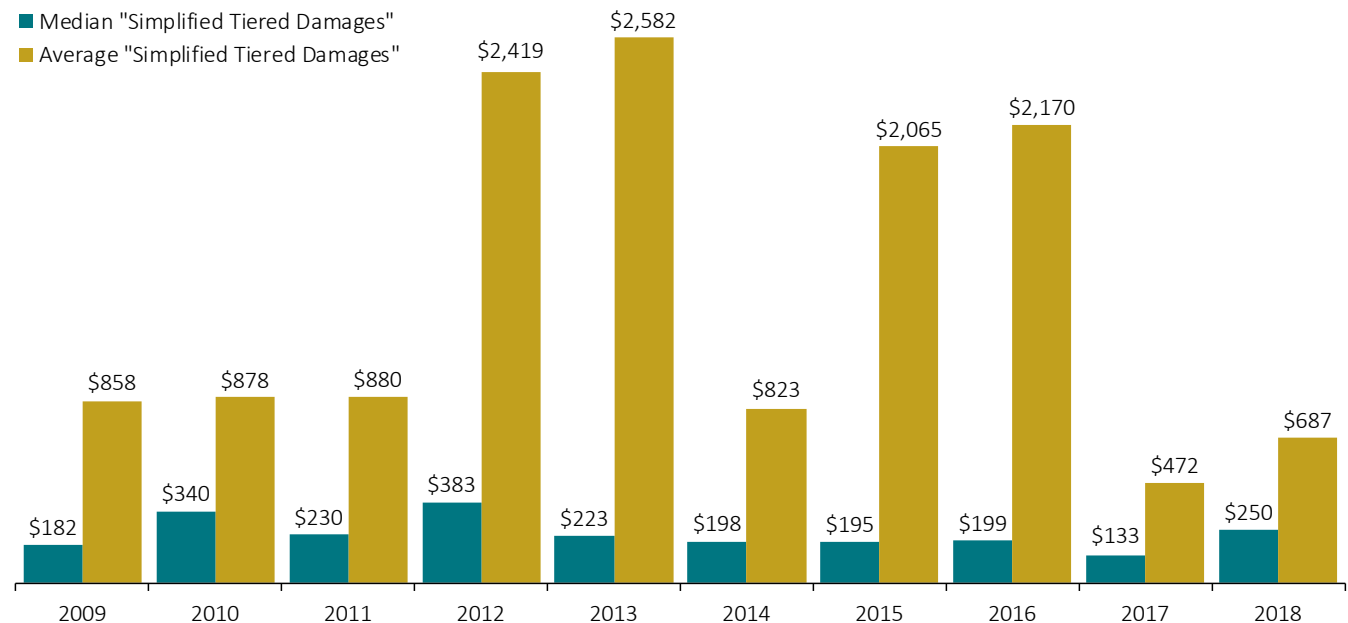
“Simplified tiered damages” uses simplifying assumptions to estimate per-share damages and trading behavior. It provides a measure of potential shareholder losses that allows for consistency across a large volume of cases, thus enabling the identification and analysis of potential trends.<sup>4</sup> Cornerstone Research’s prediction model finds this measure to be the most important factor in predicting settlement amounts.<sup>5</sup> However, this measure is not intended to represent actual economic losses borne by shareholders. Determining any such losses for a given case requires more in-depth economic analysis.

*Median “simplified tiered damages” increased 88 percent from 2017.*

- “Simplified tiered damages” is correlated with stock market volatility at the time of a case filing. The rise in median and average “simplified tiered damages” in 2018 is consistent with increased stock market volatility in 2015 and 2016, when more than half of cases that settled in 2018 were filed.
- “Simplified tiered damages” is also generally correlated with the length of the class period. For cases settled in 2018, the median class period length was over 13 percent longer than the median in 2017.
- Higher “simplified tiered damages” are generally associated with larger issuer defendants (measured by total assets or market capitalization of the issuer). In 2018, the median issuer defendant total assets of \$829 million was almost 50 percent larger than for cases settled in 2017.

**Figure 4: Median and Average “Simplified Tiered Damages” 2009–2018**

(Dollars in millions)



Note: “Simplified tiered damages” are adjusted for inflation based on class period end dates. Damages are estimated for cases alleging a claim under Rule 10b-5 (whether alone or in addition to other claims).

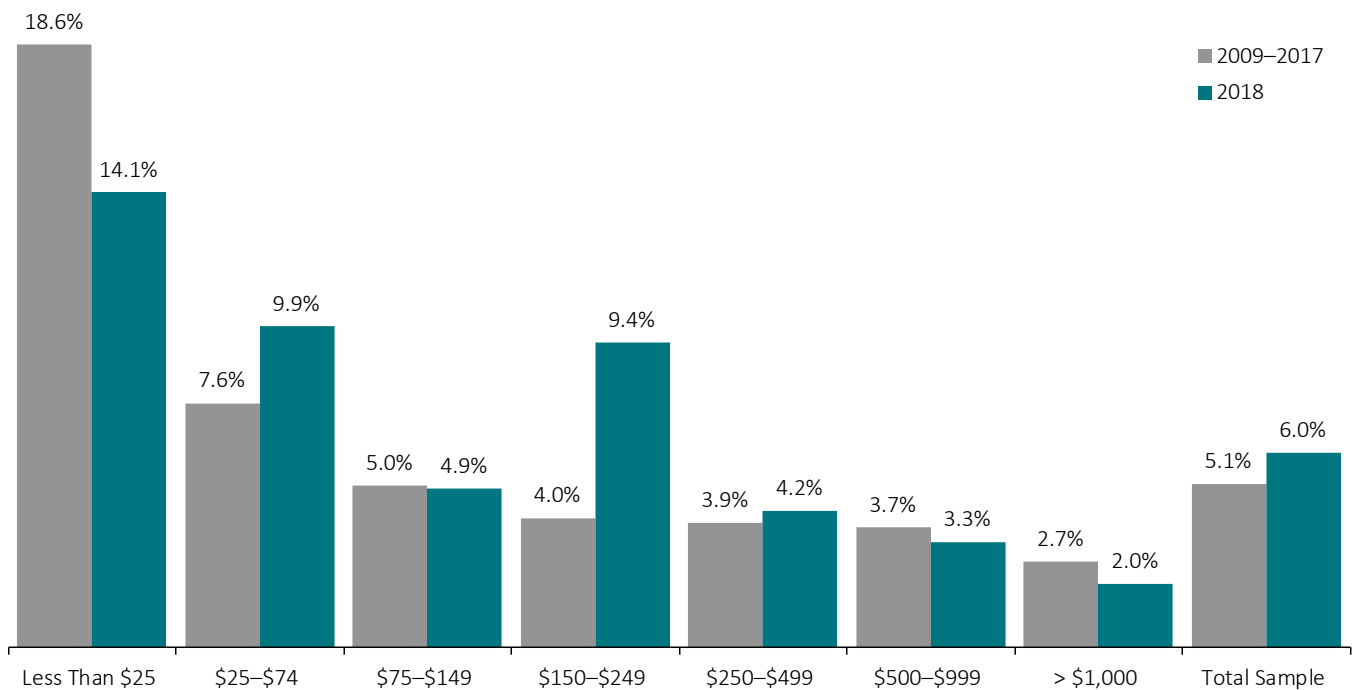
- Larger cases (cases with higher levels of the proxy for shareholder losses) typically settle for a smaller percentage of “simplified tiered damages.”
- The median settlement as a percentage of “simplified tiered damages” increased to 6.0 percent in 2018, compared to a median of 5.1 percent for the prior nine years.
- For the smallest cases (measured by “simplified tiered damages”), the median settlement as a percentage of “simplified tiered damages” decreased by more than 50 percent, from 29 percent in 2017 to 14 percent in 2018.

*The median settlement as a percentage of “simplified tiered damages” increased for the third consecutive year.*

- As observed over the last decade, smaller cases typically settle more quickly. Cases with less than \$25 million in “simplified tiered damages” settled within 2.9 years on average, compared to 4.5 years for cases with “simplified tiered damages” of greater than \$500 million.

**Figure 5: Median Settlements as a Percentage of “Simplified Tiered Damages” by Damages Ranges 2009–2018**

(Dollars in millions)



Note: Damages are estimated for cases alleging a claim under Rule 10b-5 (whether alone or in addition to other claims).

## '33 Act Claims: "Simplified Statutory Damages"

- For cases involving only Section 11 and/or Section 12(a)(2) claims ('33 Act claims), shareholder losses are estimated using a model in which the statutory loss is the difference between the statutory purchase price and the statutory sales price, referred to here as "simplified statutory damages."<sup>6</sup> Only the offered shares are assumed to be eligible for damages.
- "Simplified statutory damages" are typically smaller than "simplified tiered damages," reflecting differences in the methodologies used to estimate alleged inflation per share, as well as differences in the shares eligible to be damaged (i.e., only offered shares are included).
- In 2018, among settlements involving only '33 Act claims, the median time to settlement was 2.3 years, compared to slightly more than three years for cases involving only Rule 10b-5 claims.
- Median settlement amounts are substantially higher for cases involving both '33 Act claims and Rule 10b-5 allegations than for those with only Rule 10b-5 claims.

*Eight cases involving only '33 Act claims settled in 2018.*

Figure 6: Settlements by Nature of Claims  
 2009–2018

(Dollars in millions)

	Number of Settlements	Median Settlement	Median "Simplified Statutory Damages"	Median Settlement as a Percentage of "Simplified Statutory Damages"
Section 11 and/or Section 12(a)(2) Only	76	\$5.2	\$107.8	8.0%

	Number of Settlements	Median Settlement	Median "Simplified Tiered Damages"	Median Settlement as a Percentage of "Simplified Tiered Damages"
Both Rule 10b-5 and Section 11 and/or Section 12(a)(2)	127	\$14.8	\$339.6	5.8%
Rule 10b-5 Only	537	\$8.2	\$203.9	4.6%

Note: Settlement dollars and damages are adjusted for inflation; 2018 dollar equivalent figures are used. Damages are adjusted for inflation based on class period end dates.

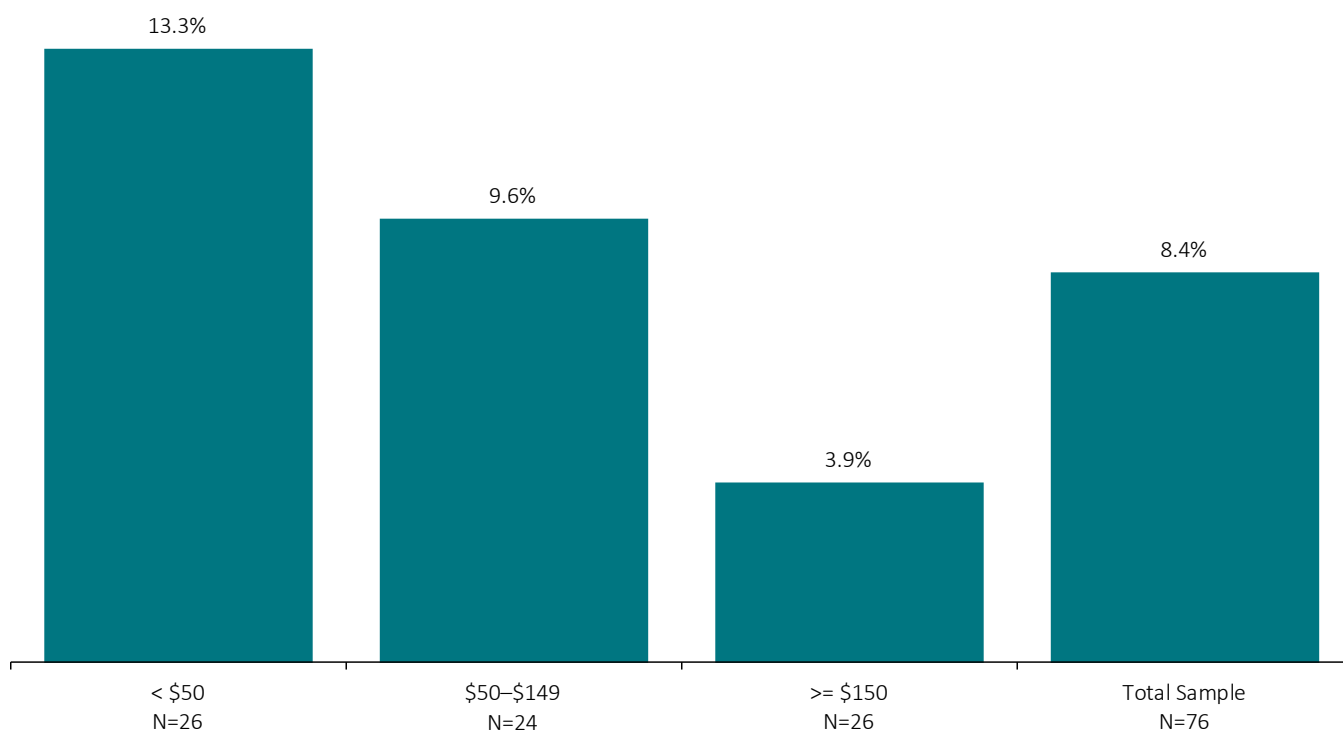
- Similar to cases with Rule 10b-5 claims, settlements as a percentage of “simplified statutory damages” for cases with only ‘33 Act claims are smaller for cases that have larger estimated damages.
- Since 2009, 85 percent of settled cases with only ‘33 Act claims had a named underwriter defendant.
- Over the period 2009–2018, the average settlement as a percentage of “simplified statutory damages” for cases with a named underwriter defendant was 13.2 percent, compared to 5.9 percent for cases without a named underwriter defendant.

*50 percent of cases with only ‘33 Act claims settled in 2018 were heard in state courts.*

- As discussed in *Securities Class Action Filings—2018 Year in Review*, stand-alone ‘33 Act claim case filings were 45 percent higher in 2018 than the average over the prior five years. These cases will likely reach resolution within the next two to three years and may contribute to an increase in the number of ‘33 Act claim settlements during those years.

**Figure 7: Median Settlements as a Percentage of “Simplified Statutory Damages” by Damages Ranges 2009–2018**

(Dollars in millions)



Note: N refers to the number of observations.

# Analysis of Settlement Characteristics

## Accounting Allegations

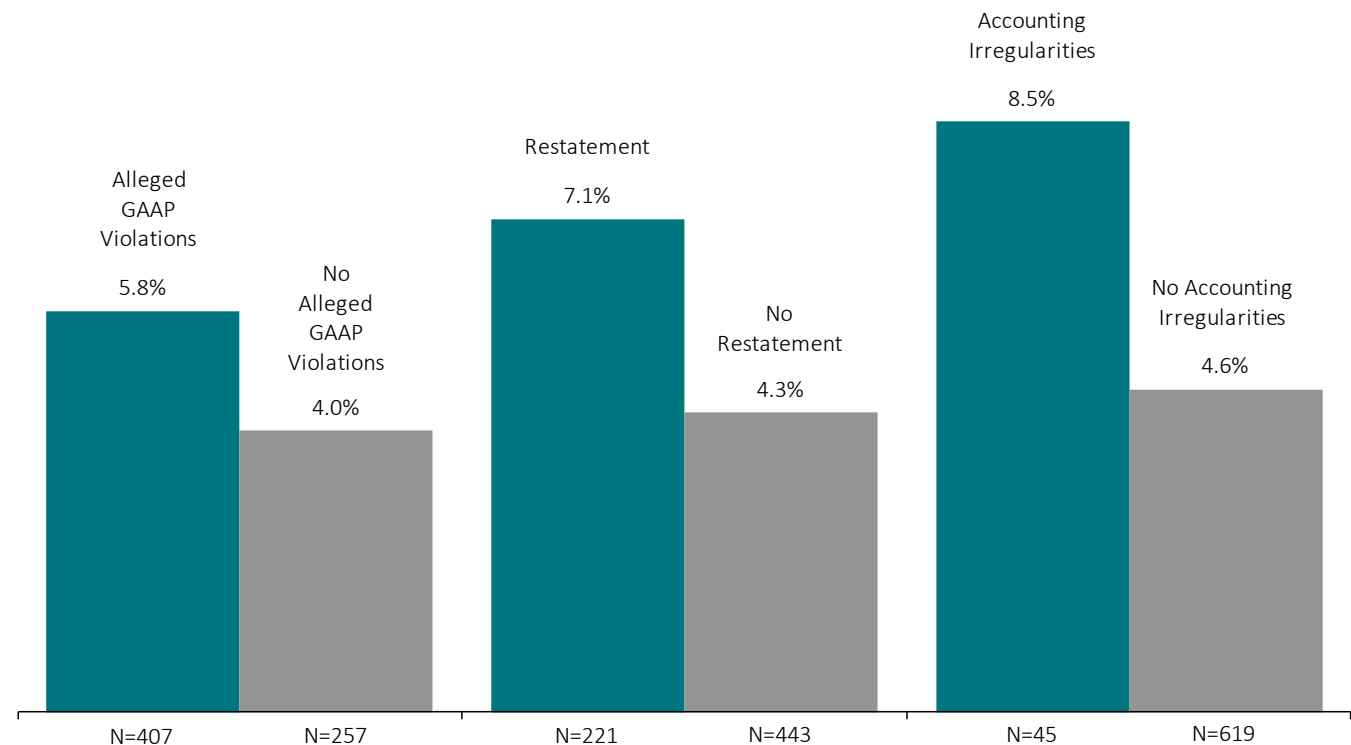
This analysis examines three types of accounting issues among settled cases involving Rule 10b-5 claims: (1) alleged Generally Accepted Accounting Principles (GAAP) violations, (2) restatements, and (3) reported accounting irregularities.<sup>7</sup> For further details regarding settlements of accounting cases, see Cornerstone Research's annual report on *Accounting Class Action Filings and Settlements*.<sup>8</sup>

- The proportion of settled cases alleging GAAP violations in 2018 was 45 percent, continuing a four-year decline from a high of 67 percent in 2014.
- Settled cases with restatements are generally associated with higher settlements as a percentage of "simplified tiered damages" compared to cases without restatements. In 2018, the median settlement as a percentage of "simplified tiered damages" was 11.3 percent for cases with restatements, but 5.1 percent for cases without restatements.

- Among cases settled in 2018 with accounting-related allegations, approximately 10 percent involved a named auditor codefendant, essentially unchanged from 2017 (10.2 percent). However, these proportions were significantly lower than the average of 21.9 percent over the prior eight years.
- Reported accounting irregularities among settled cases averaged less than 2 percent from 2015 to 2018, compared to almost 10 percent from 2009 to 2014.

*The infrequency of reported accounting irregularities among settled cases continued for the fourth straight year.*

Figure 8: Median Settlements as a Percentage of "Simplified Tiered Damages" and Accounting Allegations 2009–2018



Note: N refers to the number of observations.

## Institutional Investors

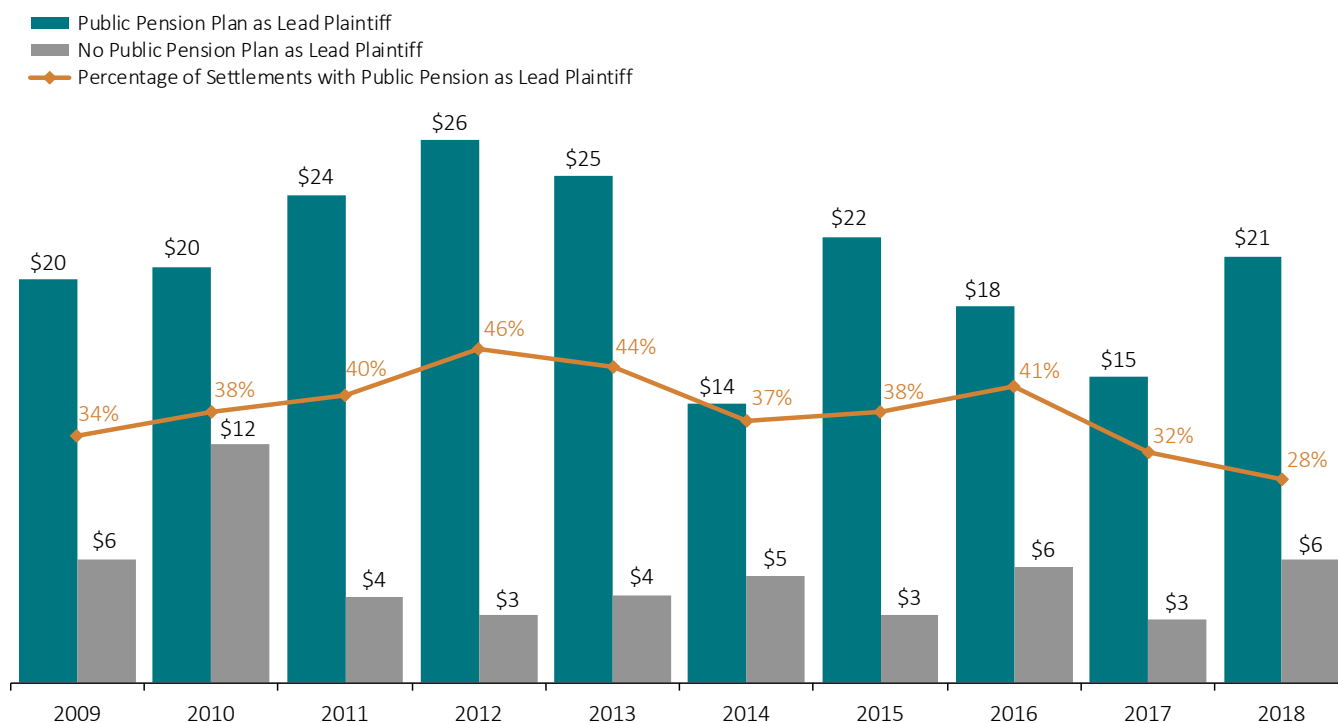
- Institutional investors, including public pension plans (a subset of institutional investors), tend to be involved in larger cases, that is, cases with higher “simplified tiered damages.”
- Median “simplified tiered damages” for cases involving a public pension as a lead plaintiff in 2018 were \$689 million compared to \$213 million for cases without a public pension as a lead plaintiff.
- While public pensions historically have tended to be involved in cases with accounting-related allegations (i.e., alleged GAAP violations, restatements, and accounting irregularities), this was not true in 2018.

*The proportion of 2018 settlements with a public pension plan as lead plaintiff was at its lowest level in the last decade.*

- In 2018, median total assets for issuer defendants in cases involving an institutional investor as a lead plaintiff were \$1.6 billion compared to \$328 million for cases without institutional investor involvement.

**Figure 9: Median Settlement Dollars and Public Pension Plans 2009–2018**

(Dollars in millions)



Note: Settlement dollars are adjusted for inflation; 2018 dollar equivalent figures are used.

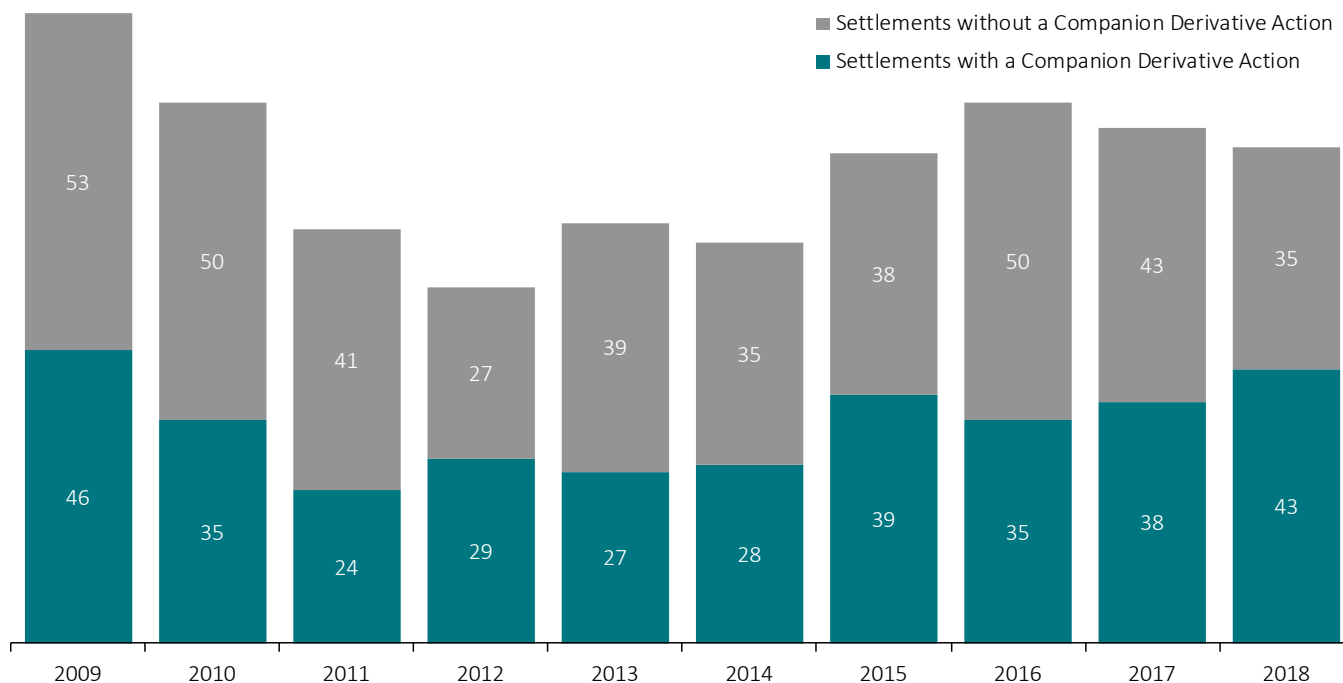
## Derivative Actions

Derivative cases accompanying securities class actions are more frequently filed when corresponding securities class actions are relatively large or involve a financial restatement or public pension plan lead plaintiff.

*The percentage of settled cases with a public pension plan lead plaintiff that also involved an accompanying derivative action reached 77 percent in 2018, its highest level in the last 10 years.*

- The increase in the proportion of settled cases involving an accompanying derivative action is consistent with both the larger cases (measured by “simplified tiered damages”) and the larger settlement amounts observed in 2018.
- The median “simplified tiered damages” for cases with companion derivative actions was \$480 million, compared to \$47 million for cases without accompanying derivative actions.
- The median settlement amount for cases with companion derivative actions was \$18 million, compared to \$5 million for cases without accompanying derivative actions.

Figure 10: Frequency of Derivative Actions  
2009–2018



## Corresponding SEC Actions

Cases with a corresponding Securities and Exchange Commission (SEC) action related to the allegations are typically associated with significantly higher settlement amounts and higher settlements as a percentage of “simplified tiered damages.”<sup>9</sup>

- The number of settled securities class actions with corresponding SEC actions has remained relatively stable over the last four years.
- Cases with corresponding SEC actions tend to involve larger issuer defendants. For cases settled during 2009–2018, the median total assets of issuer defendant firms at the time of settlement were \$946 million for cases with corresponding SEC actions, compared to \$653 million for cases without a corresponding SEC action.

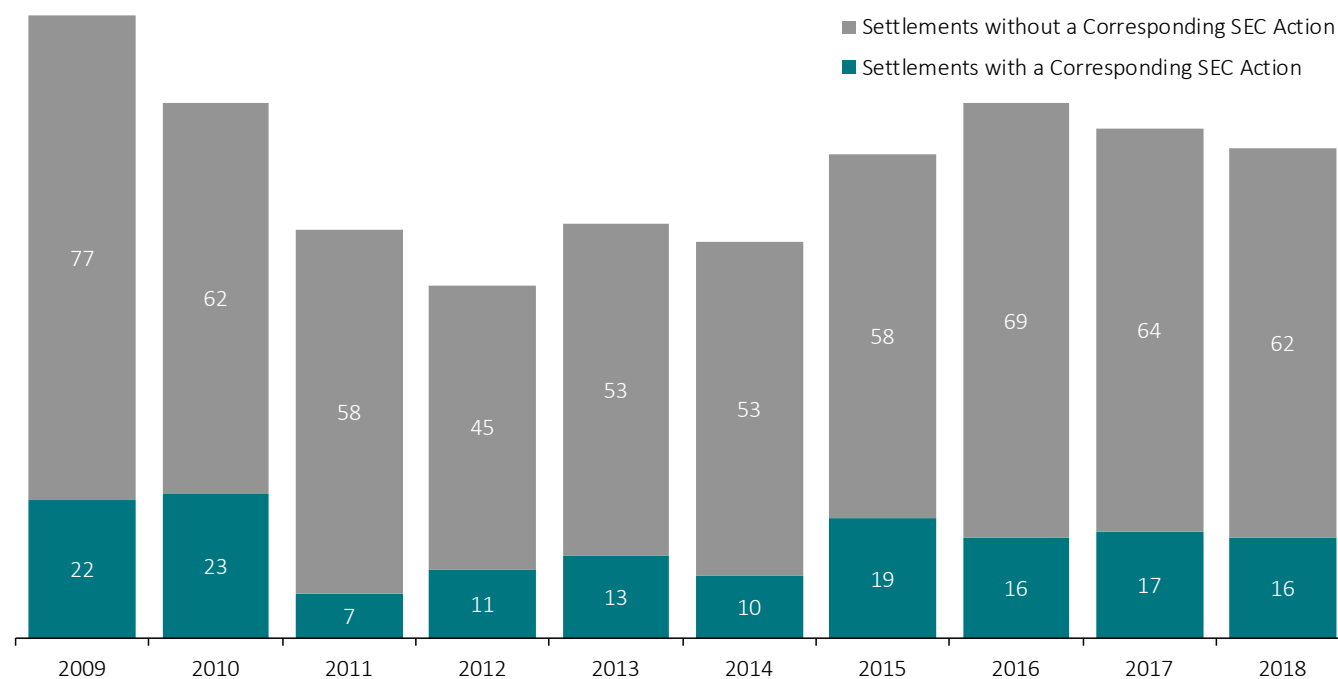
- Corresponding SEC actions are also frequently associated with distressed firms. For purposes of this research, a distressed firm has either declared bankruptcy or been delisted from a major U.S. exchange prior to settlement.

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*At 54 percent, 2018 had one of the highest rates of SEC actions among distressed firms in the past decade.*

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Figure 11: Frequency of SEC Actions  
 2009–2018





# Case Stage at the Time of Settlement

In collaboration with Stanford Securities Litigation Analytics (SSLA),<sup>10</sup> we have analyzed settlements in relation to the stage in the litigation process at the time of settlement, expanding on the stages analyzed in our prior reports.

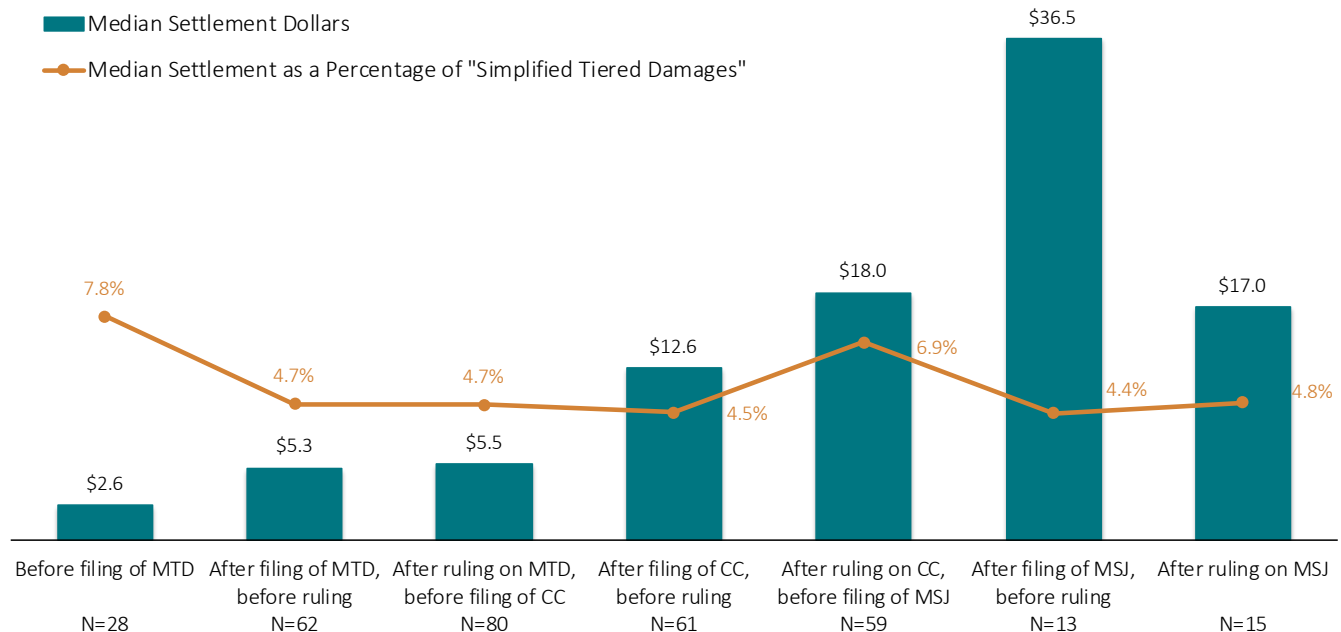
- In 2018, cases settled after a motion to dismiss was filed but prior to a ruling had a median settlement of \$7.9 million, significantly lower than for cases settled at later stages.
- In addition, among 2018 settlements, median total assets at the time of settlement were almost 100 percent larger for cases settled after a ruling on a motion to dismiss than for cases settled at earlier stages.

*The average time to reach a ruling on a motion for class certification among settlements in 2018 was 4.8 years.*

- In the five-year period from 2014 to 2018, the median settlement for cases settled after a motion for class certification was filed but prior to a ruling was \$12.6 million, compared to \$18 million for cases settled after a ruling.
- Over the same period, the median “simplified tiered damages” for cases settled after a filing of a motion for summary judgment was over four times the median for cases settled prior to such a motion being filed. This contributed to higher settlement amounts but lower settlements as a percentage of “simplified tiered damages” for cases settled at this stage.

**Figure 12: Median Settlement Dollars and Resolution Stage at Time of Settlement 2014–2018**

(Dollars in millions)



Note: Settlement dollars are adjusted for inflation; 2018 dollar equivalent figures are used. MTD refers to “motion to dismiss,” CC refers to “class certification,” and MSJ refers to “motion for summary judgment.” This analysis is limited to cases alleging Rule 10b-5 claims.

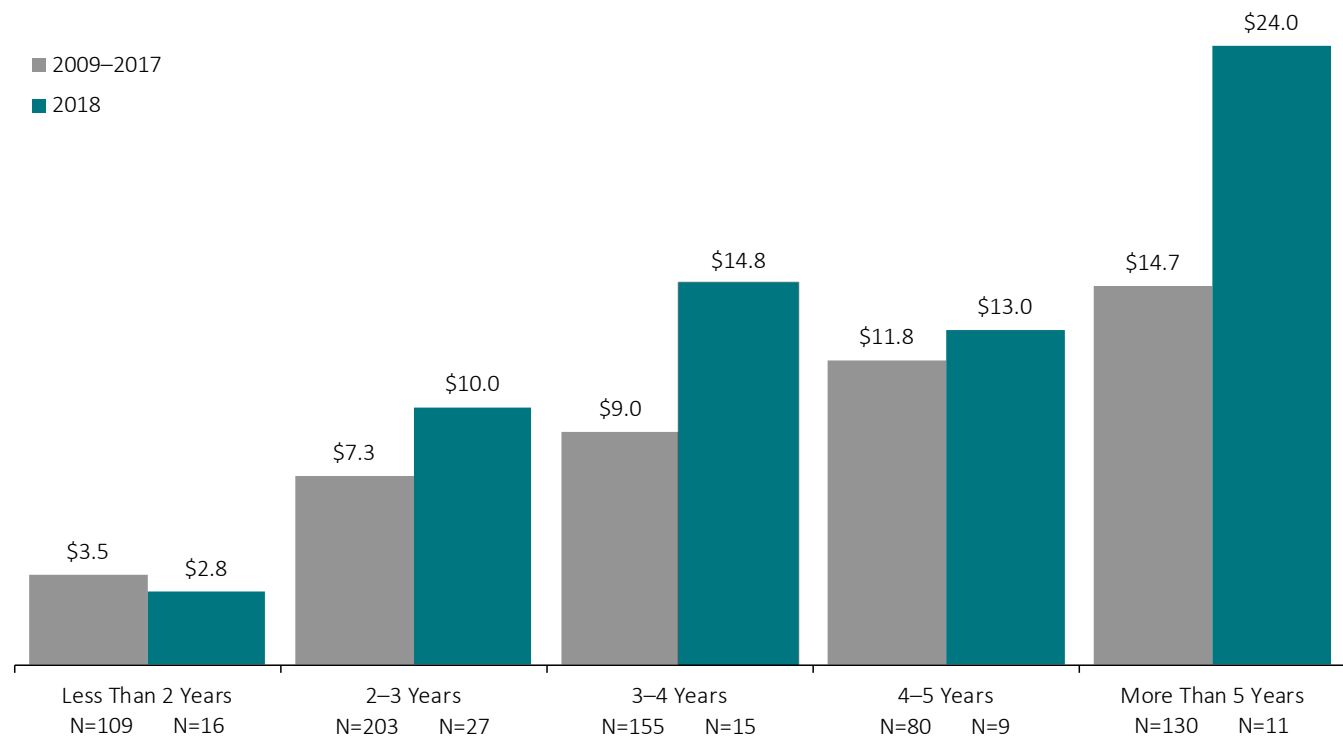
# Time to Settlement and Case Complexity

- In 2018, 21 percent of cases settled within two years of filing, 12 percent higher than the prior five-year average.
- Cases that settle quickly tend to be smaller (measured by “simplified tiered damages” or total assets of the issuer defendant). Rule 10b-5 cases settled in less than two years in 2018 had median “simplified tiered damages” of \$67 million, compared to a median of \$319 million for settlements that took more than two years to be resolved.
- While, on average, settled cases in 2018 reached resolution more quickly than in prior years, almost 15 percent of cases took more than five years to settle in 2018 and settled for substantially higher amounts. Over 80 percent of these cases had accompanying derivative actions, and median assets of the defendant firms were more than twice as large as in other cases.
- For the period 2013–2018, cases settled within two years of filing had higher attorney fees as a percentage of the settlement fund than cases that took longer to settle.<sup>11</sup>

*The average time from filing to settlement in 2018 was 3.3 years.*

**Figure 13: Median Settlement by Duration from Filing Date to Settlement Hearing Date 2009–2018**

(Dollars in millions)



Note: Settlement dollars are adjusted for inflation; 2018 dollar equivalent figures are used. N refers to the number of observations.

# Cornerstone Research's Settlement Prediction Analysis

This research applies regression analysis to examine the relationships between settlement outcomes and certain security case characteristics. Regression analysis is employed to better understand and predict the total settlement amount, given the characteristics of a particular securities case. Regression analysis can also be applied to estimate the probabilities associated with reaching alternative settlement levels. It is also helpful in exploring hypothetical scenarios, including how the presence or absence of particular factors affects predicted settlement amounts.

## Determinants of Settlement Outcomes

Based on the research sample of post-Reform Act cases that settled through December 2018, the factors that were important determinants of settlement amounts included the following:

- “Simplified tiered damages”
- Maximum Dollar Loss (MDL)—market capitalization change from its peak to post-disclosure value
- Most recently reported total assets of the issuer defendant firm
- A measure of how long the issuer defendant has been a public company
- Number of entries on the lead case docket
- The year in which the settlement occurred
- Whether a restatement of financials related to the alleged class period was announced
- Whether there was a corresponding SEC action and/or criminal indictments/charges against the issuer, other defendants, or related parties

- Whether an outside auditor or underwriter was named as a codefendant
- Whether Section 11 and/or Section 12(a) claims were alleged in addition to Rule 10b-5 claims
- Whether the issuer defendant was distressed
- Whether a public pension was a lead plaintiff
- Whether the plaintiffs alleged that securities other than common stock were damaged

Regression analyses show that settlements were higher when “simplified tiered damages,” MDL, issuer defendant asset size, the length of time the company has been public, or the number of docket entries were larger, or when Section 11 and/or Section 12(a) claims were alleged in addition to Rule 10b-5 claims.

Settlements were also higher in cases involving financial restatements, a corresponding SEC action, a public pension involved as lead plaintiff, a third party such as an outside auditor or underwriter was named as a codefendant, or securities other than common stock were alleged to be damaged.

Settlements were lower if the settlement occurred in 2012 or later, or if the issuer was distressed.

Almost 75 percent of the variation in settlement amounts can be explained by the factors discussed above.

## Research Sample

- The database used in this report contains cases alleging fraudulent inflation in the price of a corporation's common stock (i.e., excluding cases with alleged classes of only bondholders, preferred stockholders, etc., and excluding cases alleging fraudulent depression in price and merger and acquisition (M&A) cases).
- The sample is limited to cases alleging Rule 10b-5, Section 11, and/or Section 12(a)(2) claims brought by purchasers of a corporation's common stock. These criteria are imposed to ensure data availability and to provide a relatively homogeneous set of cases in terms of the nature of the allegations.
- The current sample includes 1,775 securities class actions filed after passage of the Reform Act (1995) and settled from 1996 through 2018. These settlements are identified based on a review of case activity collected by Securities Class Action Services LLC (SCAS).<sup>12</sup>
- The designated settlement year, for purposes of this report, corresponds to the year in which the hearing to approve the settlement was held.<sup>13</sup> Cases involving multiple settlements are reflected in the year of the most recent partial settlement, provided certain conditions are met.<sup>14</sup>

## Data Sources

In addition to SCAS and SSLA, data sources include Dow Jones Factiva, Bloomberg, the Center for Research in Security Prices (CRSP) at University of Chicago Booth School of Business, Standard & Poor's Compustat, court filings and dockets, SEC registrant filings, SEC litigation releases and administrative proceedings, LexisNexis, and public press.

# Endnotes

- <sup>1</sup> See *Securities Class Action Filings—2018 Year in Review*, Cornerstone Research (2019), <https://www.cornerstone.com/Publications/Reports/Securities-Class-Action-Filings-2018-Year-in-Review.pdf>
- <sup>2</sup> See John C. Coffee Jr., “Securities Litigation in 2017: ‘It Was the Best of Times, It Was the Worst of Times,’” CLS Blue Sky Blog, March 19, 2018, <http://clsbluesky.law.columbia.edu/2018/03/19/securities-litigation-in-2017-it-was-the-best-of-times-it-was-the-worst-of-times/>.
- <sup>3</sup> See Kevin LaCroix, “Scrutinizing Event-Driven Securities Litigation,” D&O Diary, March 27, 2018, <https://www.dandodiary.com/2018/03/articles/securities-litigation/scrutinizing-event-driven-securities-litigation/>; John C. Coffee Jr., “Securities Litigation in 2017: ‘It Was the Best of Times, It Was the Worst of Times,’” CLS Blue Sky Blog, March 19, 2018, <http://clsbluesky.law.columbia.edu/2018/03/19/securities-litigation-in-2017-it-was-the-best-of-times-it-was-the-worst-of-times/>.
- <sup>4</sup> The “simplified tiered damages” approach used for purposes of this settlement research does not examine the mix of information associated with the specific dates listed in the plan of allocation, but simply applies the stock price movements on those dates to an estimate of the “true value” of the stock during the alleged class period (or “value line”). This proxy for damages uses an estimate of the number of shares damaged based on reported trading volume and the number of shares outstanding. Specifically, reported trading volume is adjusted using volume reduction assumptions based on the exchange on which the issuer defendant’s common stock is listed. No adjustments are made to the underlying float for institutional holdings, insider trades, or short-selling activity during the alleged class period. Because of these and other simplifying assumptions, the damages measures used in settlement outcome modeling may be overstated relative to damages estimates developed in conjunction with case-specific economic analysis.
- <sup>5</sup> See Laarni T. Bulan et al., *Estimating Damages in Settlement Outcome Modeling*, Cornerstone Research (2017), <https://www.cornerstone.com/Publications/Research/Estimating-Damages-in-Settlement-Outcome-Modeling.pdf>.
- <sup>6</sup> The statutory purchase price is the lesser of the security offering price or the security purchase price. Prior to the first complaint filing date, the statutory sales price is the price at which the security was sold. After the first complaint filing date, the statutory sales price is the greater of the security sales price or the security price on the first complaint filing date. Similar to “simplified tiered damages,” the estimation of “simplified statutory damages” makes no adjustments to the underlying float for institutional holdings, insider trades, or short-selling activity. Shares subject to a lock-up period are not added to the float for purposes of this calculation.
- <sup>7</sup> The three categories of accounting issues analyzed in this report are: (1) GAAP violations—cases with allegations involving Generally Accepted Accounting Principles (GAAP); (2) restatements—cases involving a restatement (or announcement of a restatement) of financial statements; and (3) accounting irregularities—cases in which the defendant has reported the occurrence of accounting irregularities (intentional misstatements or omissions) in its financial statements.
- <sup>8</sup> See *Accounting Class Action Filings and Settlements*, Cornerstone Research (2018), <https://www.cornerstone.com/Publications/Reports/2017-Accounting-Class-Action-Filings-and-Settlements.pdf>. Update forthcoming in April 2019.
- <sup>9</sup> It could be that the merits in such cases are stronger, or simply that the presence of a corresponding SEC action provides plaintiffs with increased leverage when negotiating a settlement. For purposes of this research, an SEC action is evidenced by the presence of a litigation release or an administrative proceeding posted on [www.sec.gov](http://www.sec.gov).
- <sup>10</sup> Stanford Securities Litigation Analytics (SSLA) tracks and collects data on private shareholder securities litigation and public enforcements brought by the SEC and the U.S. Department of Justice (DOJ). The SSLA dataset includes all traditional class actions, SEC actions, and DOJ criminal actions filed since 2000. Available on a subscription basis at <https://sla.law.stanford.edu/>.
- <sup>11</sup> Data provided by SSLA.
- <sup>12</sup> Available on a subscription basis. For further details see <https://www.issgovernance.com/securities-class-action-services/>.
- <sup>13</sup> Movements of partial settlements between years can cause differences in amounts reported for prior years from those presented in earlier reports.
- <sup>14</sup> This categorization is based on the timing of the settlement approval. If a new partial settlement equals or exceeds 50 percent of the then-current settlement fund amount, the entirety of the settlement amount is recategorized to reflect the settlement hearing date of the most recent partial settlement. If a subsequent partial settlement is less than 50 percent of the then-current total, the partial settlement is added to the total settlement amount and the settlement hearing date is left unchanged.

# Appendices

## Appendix 1: Settlement Percentiles

(Dollars in millions)

	Average	10th	25th	Median	75th	90th
2018	\$64.9	\$1.5	\$3.6	\$11.3	\$24.8	\$52.1
2017	\$18.7	\$1.5	\$2.6	\$5.1	\$15.4	\$35.3
2016	\$73.8	\$2.0	\$4.4	\$8.9	\$34.5	\$152.7
2015	\$41.7	\$1.4	\$2.3	\$6.9	\$17.2	\$99.6
2014	\$19.3	\$1.8	\$3.0	\$6.4	\$14.0	\$53.0
2013	\$77.9	\$2.0	\$3.2	\$7.0	\$23.9	\$88.9
2012	\$67.0	\$1.3	\$2.9	\$10.3	\$38.8	\$125.8
2011	\$23.4	\$2.1	\$2.8	\$6.4	\$20.1	\$46.6
2010	\$41.1	\$2.3	\$4.9	\$13.0	\$28.8	\$91.7
2009	\$43.9	\$2.8	\$4.5	\$9.4	\$23.4	\$77.7
1996–2018	\$45.4	\$1.7	\$3.6	\$8.6	\$21.9	\$75.1

Note: Settlement dollars are adjusted for inflation; 2018 dollar equivalent figures are used.

## Appendix 2: Select Industry Sectors 2009–2018

(Dollars in millions)

Industry	Number of Settlements	Median Settlement	Median “Simplified Tiered Damages”	Median Settlement as a Percentage of “Simplified Tiered Damages”
Financial	111	\$21.7	\$452.8	4.8%
Technology	108	\$9.2	\$217.9	5.1%
Pharmaceuticals	91	\$8.7	\$251.5	3.9%
Telecommunications	41	\$8.6	\$220.3	4.5%
Retail	38	\$6.6	\$189.6	4.3%
Healthcare	20	\$8.2	\$136.0	6.4%

Note: Settlement dollars and “simplified tiered damages” are adjusted for inflation; 2018 dollar equivalent figures are used. “Simplified tiered damages” are calculated only for cases involving Rule 10b-5 claims.

### Appendix 3: Settlements by Federal Circuit Court 2009–2018

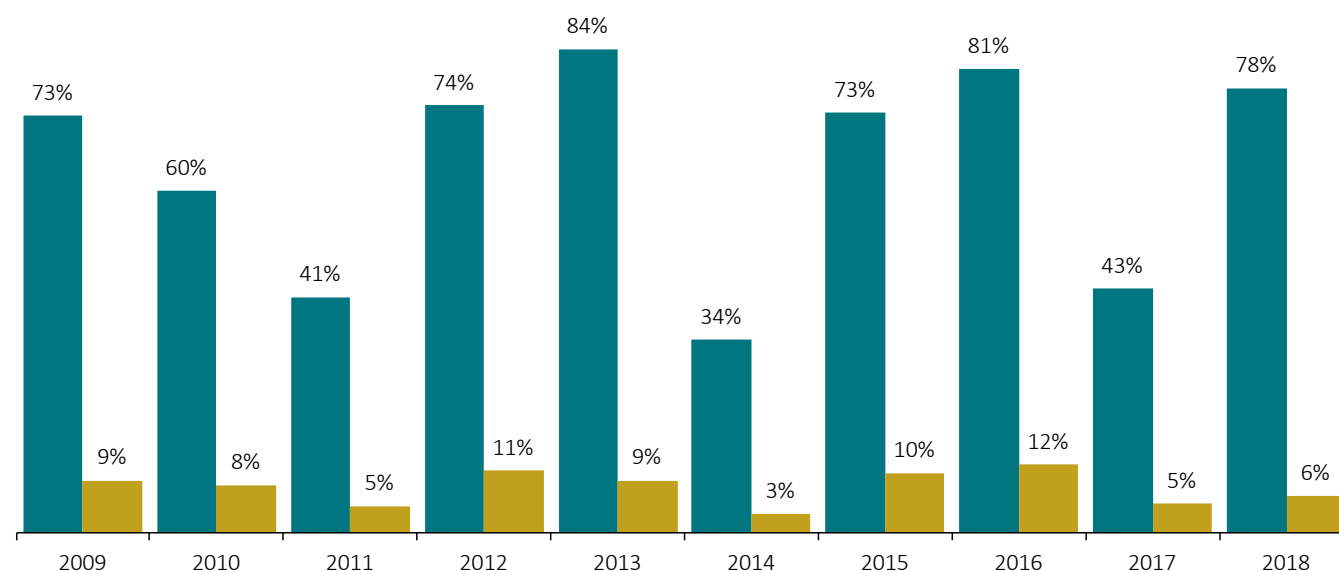
(Dollars in millions)

Circuit	Number of Settlements	Median Settlement	Median Settlement as a Percentage of “Simplified Tiered Damages”
First	24	\$7.1	3.4%
Second	177	\$11.4	4.7%
Third	61	\$7.0	4.6%
Fourth	26	\$12.5	3.2%
Fifth	35	\$8.9	4.5%
Sixth	33	\$13.0	7.4%
Seventh	37	\$10.3	4.4%
Eighth	14	\$11.7	5.9%
Ninth	196	\$8.3	5.1%
Tenth	19	\$8.8	4.8%
Eleventh	36	\$7.2	5.7%
DC	4	\$23.0	2.2%

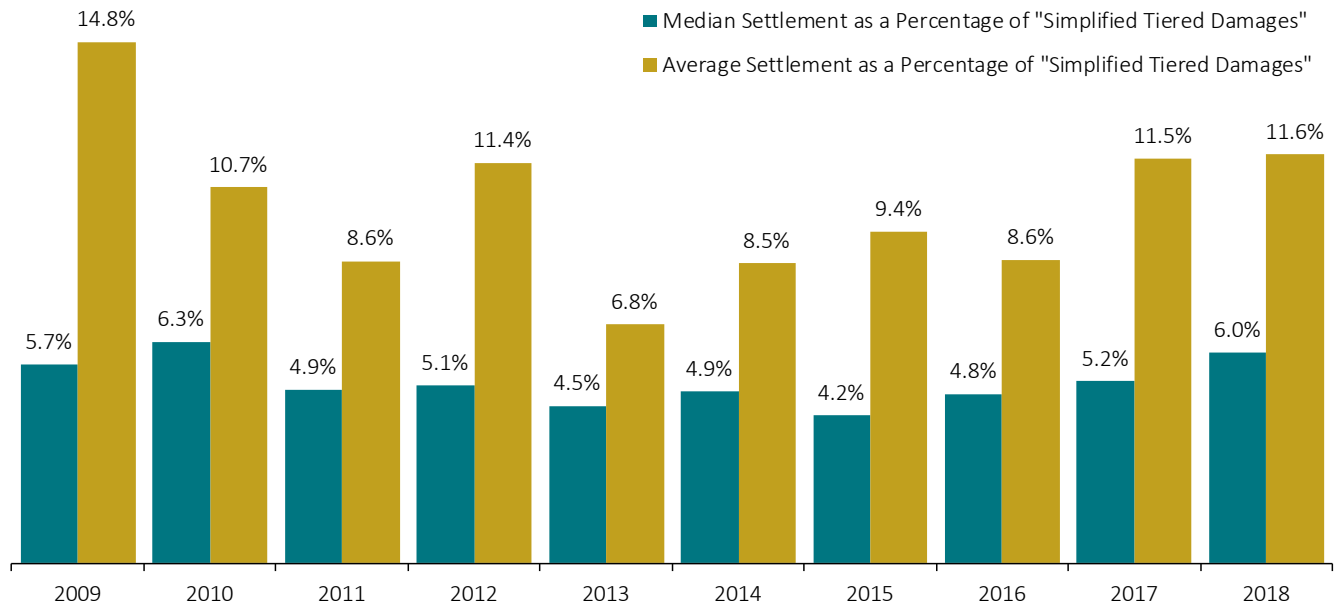
Note: Settlement dollars are adjusted for inflation; 2018 dollar equivalent figures are used. Settlements as a percentage of “simplified tiered damages” are calculated only for cases alleging Rule 10b-5 claims.

### Appendix 4: Mega Settlements 2009–2018

- Total Mega Settlement Dollars as a Percentage of All Settlement Dollars
- Number of Mega Settlements as a Percentage of All Settlements



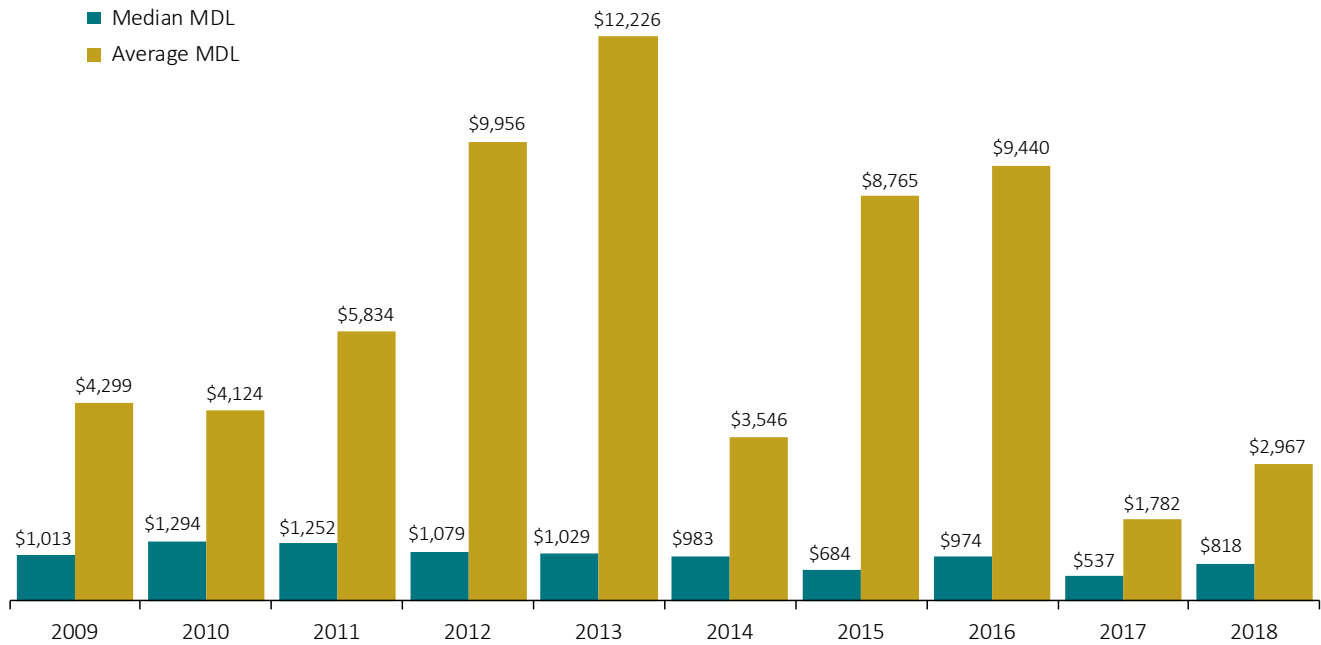
**Appendix 5: Median and Average Settlements as a Percentage of “Simplified Tiered Damages”  
 2009–2018**



Note: “Simplified tiered damages” are calculated only for cases alleging Rule 10b-5 claims.

**Appendix 6: Median and Average Maximum Dollar Loss (MDL)  
 2009–2018**

(Dollars in millions)

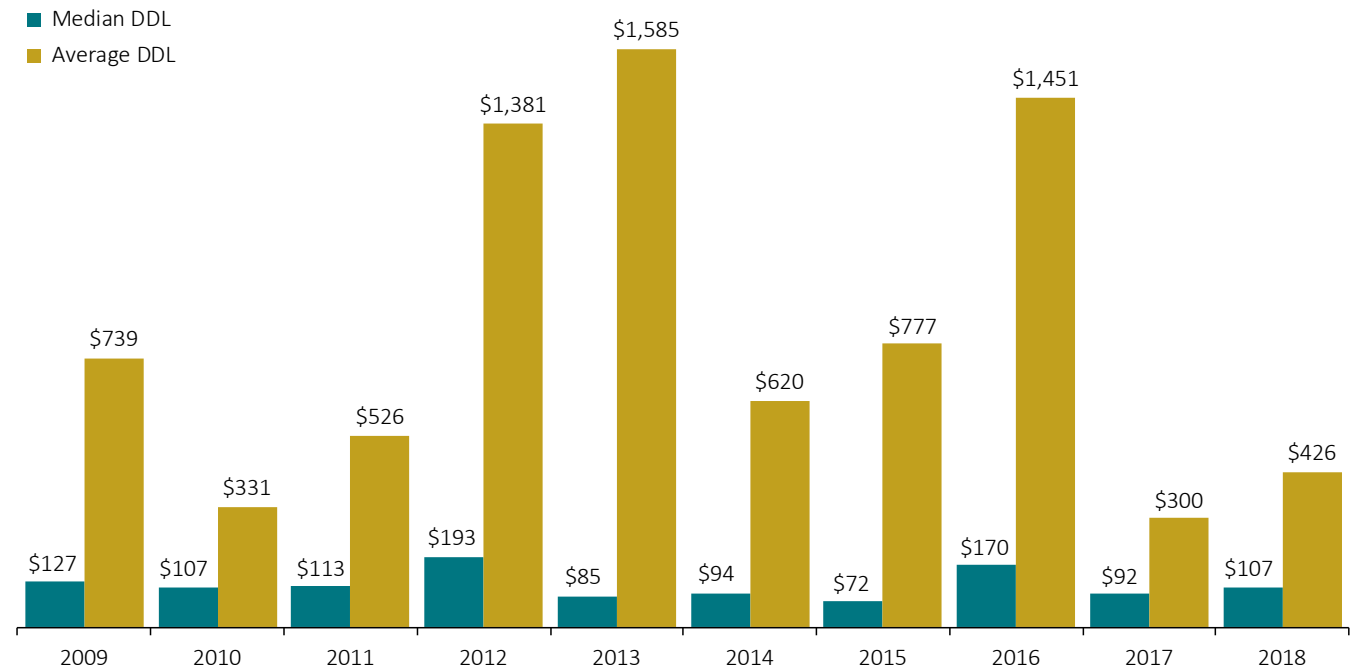


Note: MDL is adjusted for inflation based on class period end dates. MDL is the dollar value change in the defendant firm’s market capitalization from the trading day with the highest market capitalization during the class period to the trading day immediately following the end of the class period.



## Appendix 7: Median and Average Disclosure Dollar Loss (DDL) 2009–2018

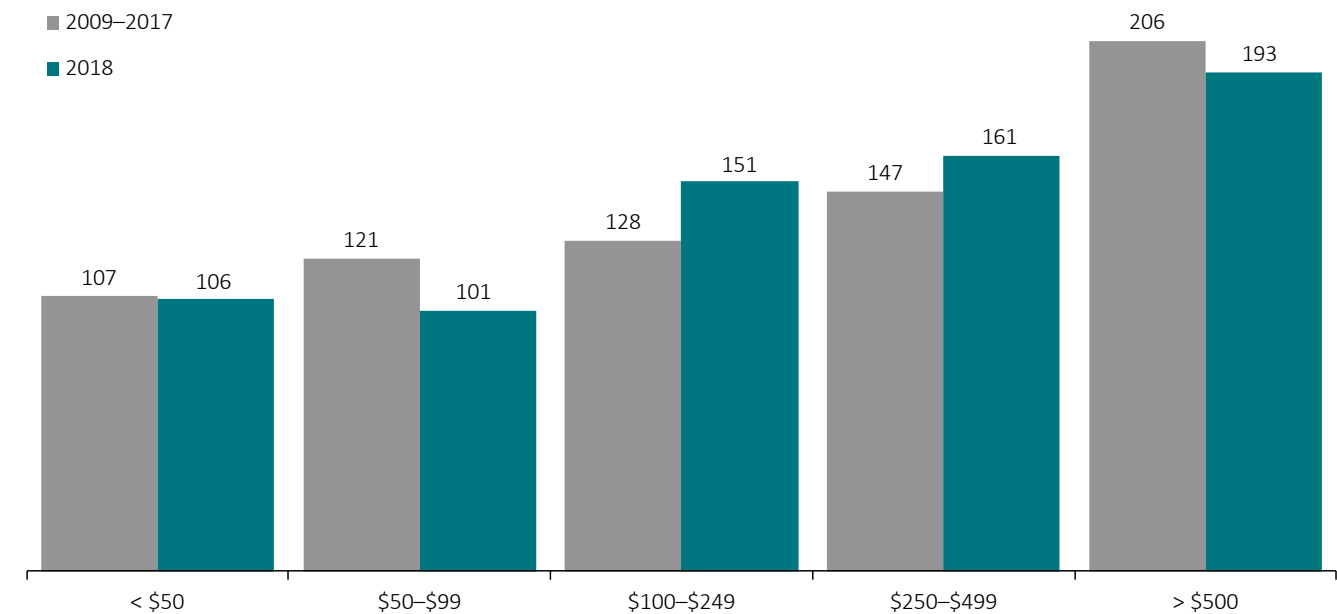
(Dollars in millions)



Note: DDL is adjusted for inflation based on class period end dates. DDL is the dollar value change in the defendant firm's market capitalization between the trading day immediately preceding the end of the class period and the trading day immediately following the end of the class period. This analysis excludes cases alleging '33 Act claims only.

## Appendix 8: Median Docket Entries by "Simplified Tiered Damages" Range 2009–2018

(Dollars in millions)



Note: "Simplified tiered damages" are calculated only for cases alleging Rule 10b-5 claims.

# About the Authors

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Laarni Bulan is a principal in Cornerstone Research's Boston office, where she specializes in finance. Her work has focused on securities damages and class certification issues, insider trading, merger valuation, risk management, market manipulation and trading behavior, and real estate markets. She has also consulted on cases related to financial institutions and the credit crisis, municipal bond mutual funds, asset-backed commercial paper conduits, credit default swaps, foreign exchange, and securities clearing and settlement. Dr. Bulan has published several academic articles in peer-reviewed journals. Her research covers topics in dividend policy, capital structure, executive compensation, corporate governance, and real options. Prior to joining Cornerstone Research, Dr. Bulan had a joint appointment at Brandeis University as an assistant professor of finance in its International Business School and in the economics department.

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Dr. Simmons's research on pre- and post-Reform Act securities litigation settlements has been published in a number of reports and is frequently cited in the public press and legal journals. She has spoken at various conferences and appeared as a guest on CNBC addressing the topic of securities case settlements. She has also published in academic journals, with recent research focusing on the intersection of accounting and litigation. Dr. Simmons was previously an accounting faculty member at the Mason School of Business at the College of William & Mary. From 1986 to 1991, she was an accountant with Price Waterhouse.

The authors acknowledge the research efforts and significant contributions of their colleagues at Cornerstone Research.

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